Method and System for Numerically Simulating Foam-like Material in Finite Element Analysis

ABSTRACT

A method and system to numerically simulating structural responses of a highly compressible material such as foam in finite element analysis is disclosed. According to one aspect of the simulation, a new improved method for calculating structural responses is derived using the following assumptions: uniaxial loading and isotropic material. As a result of the new method, Ogden polynomial stress function $f(\lambda)$ is replaced by a tabulated function depending upon only a set of stress-strain curves obtained via uniaxial tension and compression tests. The method is implemented in a finite element analysis software product.